

Fertilizer & Pesticide

Storage Facilities Best Management Practices To Protect Ground Water and Surface Water

Pesticide and fertilizer storage facilities serve several functions. A well designed and managed storage facility protects human health, wildlife, surface and ground water from exposure to agricultural chemicals. Pesticide and fertilizer storage facilities can also be a potential point source of impairment.

Pesticide and fertilizer storage facilities best management practices (BMPs) apply to dealerships, as well as farm mixing and loading (M/L) storage sites. The Farm*A*Syst program available through the MSU Extension Service also addresses storage facility best management practices. It allows users to assess pesticide and fertilizer storage and handling facilities and how to take appropriate actions to reduce and prevent impairment.

The Montana Department of Agriculture (MDA) is in the process of developing rules for storage facilities and M/L sites. The proposed rules would require any person who operates a storage facility and M/L site to comply with the requirements of the proposed rules within three years of their adoption. For example, any person who operates a storage facility that is established before the adoption of the rules would, within four years, be required to comply with the requirements for a storage facility. Figure 1 gives an example of a medium sized pesticide/fertilizer storage, containment and mixing/loading pad.

Planning of functional pesticide and fertilizer facilities can best be made in conjunction with the site plan when developing new or remodeling existing facilities. A well planned facility design is needed for human and environmental protection. The facility design provides for several distinct and separate functions:

- ✓ fertilizer storage and secondary containment.
- ✓ mixing/loading pad.
- ✓ pesticide storage and secondary containment.
- ✓ temporary triple rinsed container storage
- ✓ waste disposal area.
- ✓ worker safety.

Pesticide and fertilizer spills do happen, but may be minimized through proper storage and handling procedures by trained personnel. Storage areas

may contain a fenced outside area, storage building, warehouse or bulk storage tanks inside a dike. Plan a storage facility as an isolated, secured area with a single use, separate from other activities and storage areas (feed, seed and fuel).

Design the storage area to protect pesticides and fertilizers from possible theft, unauthorized use by untrained personnel and temperature extremes. Storage facilities should be posted to warn people of its contents and locked to prevent entry by unauthorized persons. Provide security with a properly designed fence or a building with secure doors. Proper storage protects people and animals from unknown or accidental exposure to pesticides and fertilizers. In a properly designed storage facility, the environment, including soil, surface water and ground water are also protected from accidental release by containing the spill unit until it can be properly recovered.

Empty containers need to be properly stored until they can be disposed. Storage facilities should be located on level ground and where drainage will not wash into ponds, streams or lakes. The buildings should be fire resistant, have a cement floor, good ventilation, and ample room to move around.

All pesticide releases occurring in or on a M/L area or a pesticide storage facility should be recovered as soon as possible and must be properly used, stored or disposed. Use

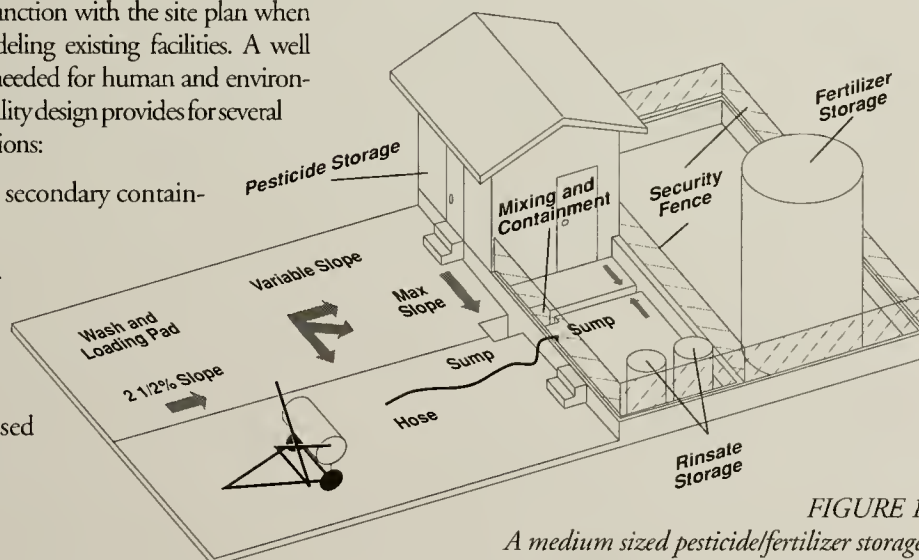


FIGURE 1.
A medium sized pesticide/fertilizer storage, containment, mixing/loading pad. Designing Facilities for Pesticide and Fertilizer Containment, MidWest Plan Service (MWPS-37) 1991.

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and storage must be according to pesticide label instructions. Disposal must be according to label directions and must also comply with local, state and federal regulations. The MDA must be notified immediately of all releases that are outside the containment area.

The MDA requires that any person who stores and handles pesticide containers: 1) inspect each container annually, 2) rotate the stock (use oldest first), 3) keep an up-to-date inventory, 4) keep Material Safety Data Sheets (MSDS) available for all pesticides and fertilizers being stored on site, and 5) store materials only in their original containers.

Mixing and loading activities should provide a means of containment that prevents runoff or leaching from or to the surrounding area. The containment facility should be constructed by following standard engineering and construction practices and built only for the intended purpose or use. These M/L activities shall be made in a manner that prevents escape of discharges which may result in adverse effects on the environment.

Store different types of pesticides separately within the storage area to prevent one type of pesticide from contaminating another and to prevent accidental use of the wrong pesticide. An Emergency Response Plan (ERP) and a current inventory should be available in case of an incident. An ERP should contain, but not be limited to, the telephone numbers of the MDA, Montana Department of Health and Environmental Sciences (MDHES), local fire departments, Disaster and Emergency Services, sheriff's departments and, if applicable, the city police department.

If there is a well near the storage site, precautions must be taken to insure that contamination from M/L operations will not occur. To prevent contamination of water resources during M/L, care must be taken to prevent back siphoning of product into hoses. This can be accomplished by several means: 1) an air gap in the line, 2) one to two anti-siphoning devices in the line, 3) separate tank and pump and 4) a good well head seal. If a spill does occur, clean it up *immediately* and notify the proper authorities. When mixing/loading pesticides, measure the amount carefully.

Applicators should control their pesticide inventory, mix only what is necessary to control the pests involved and use all of the diluted product. Pesticide waste disposal can be time-consuming and expensive; it must also conform to specific regulations. Because of the possible adverse impacts on cropland, ground water, and other concerns, disposal methods that reduce the amount of wastes generated are the most effective and cost-efficient. The best alternative for disposing of excess pesticides is recycling or reuse. All pesticides and rinsates must be used in accordance with label directions.

As new technologies develop, new BMPs will be available to efficiently and effectively manage storage sites. Depending upon circumstances, *more than one* storage site BMP should be applied. Consider:

- ✓ Analyzing on-site water wells within the past year for the type of pesticide and/or fertilizer handled at the facility.
- ✓ Never storing agricultural chemicals below grade or in basements.
- ✓ Storing all agricultural chemicals away from all sources of water.
- ✓ Storing an agricultural chemical with flammable or combustible properties away from open flames, separating from other chemicals and properly labeling.
- ✓ Knowing the location of the private and public water supply wells nearest to your facility.
- ✓ Knowing the depth to ground water.
- ✓ Knowing the general direction of ground water flow beneath your facility.
- ✓ Having adequate lighting in all product storage and handling areas.
- ✓ Locating all pipes, valves and hoses within a containment structure.
- ✓ Adding an anti-back flow device.
- ✓ Regular inspections of pipes and hoses for leaks.
- ✓ Inspecting the storage site regularly for cracks or leaks.
- ✓ Containing all products under a roof.
- ✓ Diverting rainwater from contact with the product.
- ✓ Storing agricultural chemicals in a separate area to prevent possible contamination of animal feed, grain, fertilizer and other materials.
- ✓ Keeping pesticide containers closed except during transfer operations.
- ✓ Environmental sensitivity (soil type, depth to ground water) in locating storage and M/L sites.

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The programs of the Montana Extension Service are available to all people regardless of race, creed, color, sex or national origin.

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8 and June 30, 1914. In cooperation with the U.S. Department of Agriculture, Andrea Pagenkopf, Associate Vice Provost for Outreach and Director Extension Service, Montana State University, Bozeman, Montana 59717.

Funding provided by the Montana Agricultural Chemical Ground Water Protection Act and Fertilizer Checkoff. Additional information may be found in the General Agricultural Chemical Ground Water Management Plan (GMP).